

## Supporting Information

### A High-Performance Anode for Lithium Ion Batteries: $\text{Fe}_3\text{O}_4$

#### Microspheres Encapsulated in Hollow Graphene Shells

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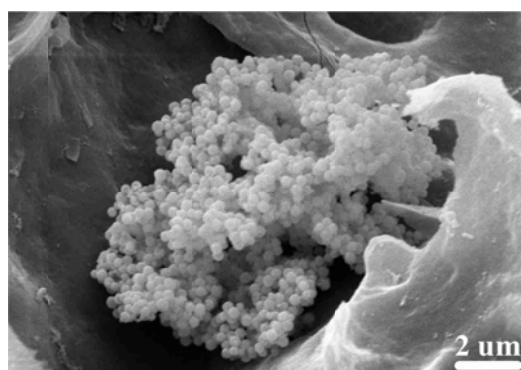


Figure S1. An SEM image of a physical mixture of  $\text{Fe}_3\text{O}_4$  and rGO.

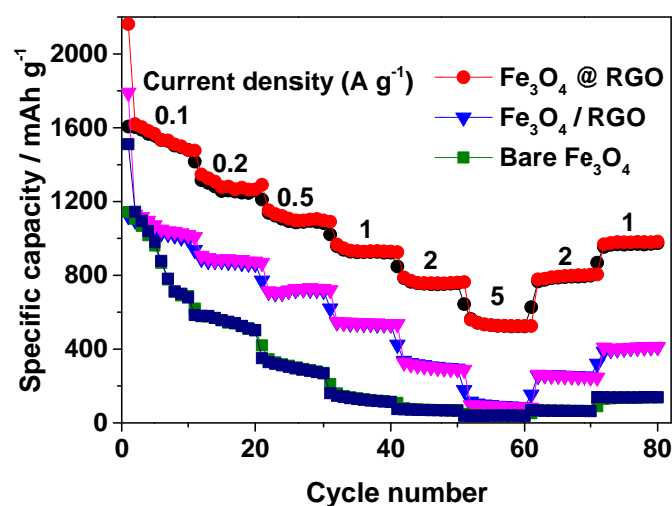
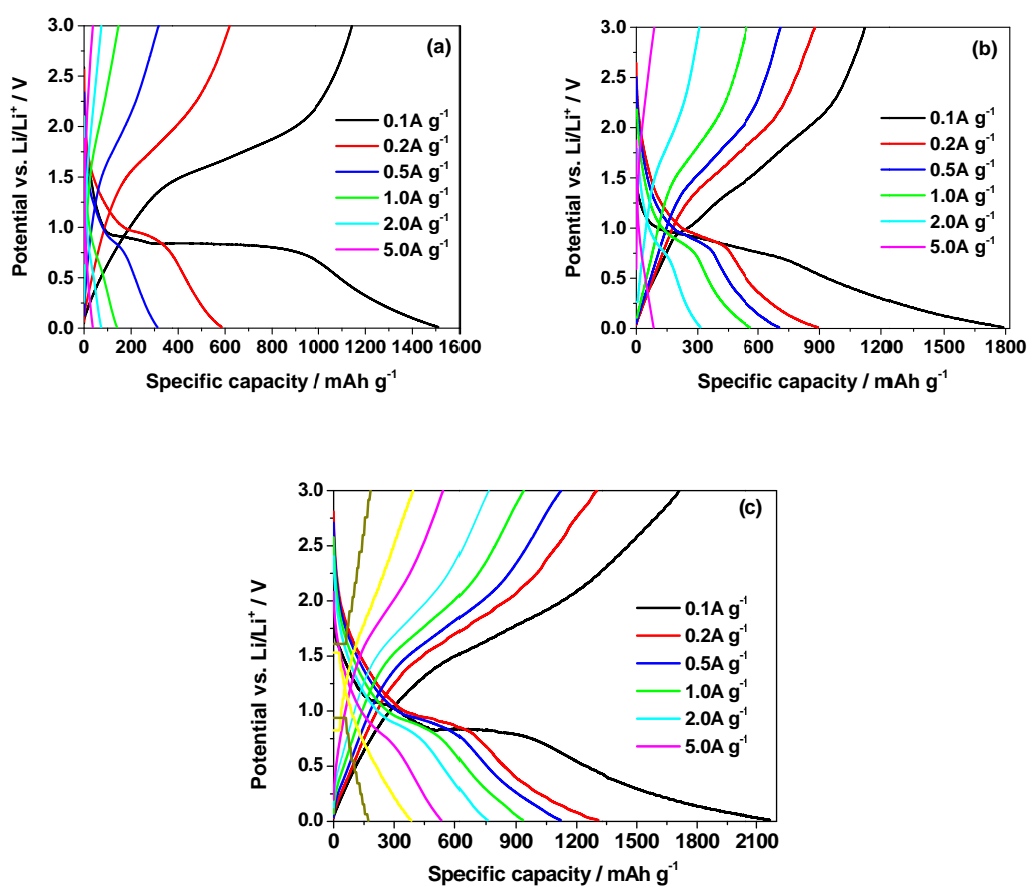
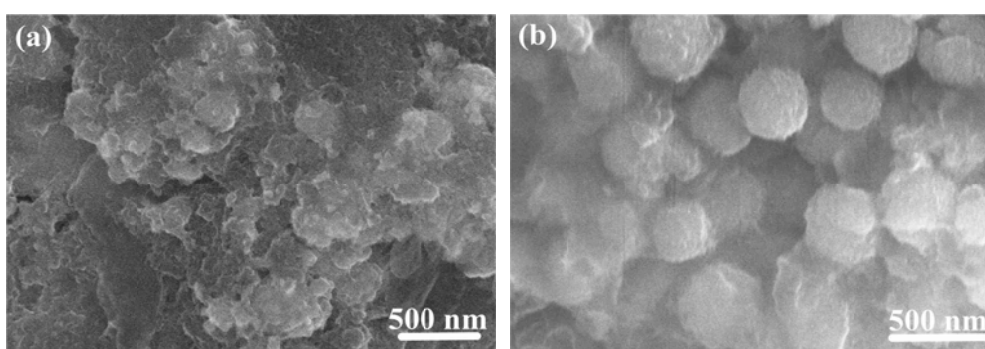


Figure S2. Comparison of the rate capabilities and cycle performance of the electrodes based on the  $\text{Fe}_3\text{O}_4$ @rGO composite, the bare  $\text{Fe}_3\text{O}_4$  microspheres, and a physical mixture of  $\text{Fe}_3\text{O}_4$  microspheres and rGO tested at rates varied from 0.1 to 5.0 A g<sup>-1</sup>.



**Figure S3.** Galvanostatic discharge-charge profiles of electrodes based on (a) the bare  $\text{Fe}_3\text{O}_4$  microspheres, (b) a mixture of  $\text{Fe}_3\text{O}_4$  microsphere and RGO, and (c) the  $\text{Fe}_3\text{O}_4@\text{RGO}$  composites at rates varied from 0.1 to 5.0  $\text{A g}^{-1}$ .



**Figure S4.** SEM images of (a) the  $\text{Fe}_3\text{O}_4$  microspheres and (b) the  $\text{Fe}_3\text{O}_4@\text{rGO}$  composites as the anode of lithium ion batteries discharged/charged for 100 cycles.